

## REMARKS

### **I. Status of the Application**

Claims 1-24 and 41-48 are presently pending in the application. Claims 1-3, 9, 12, 13, and 21 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8-13 of copending application no. 10/326,339.

Claims 1-15, 20, 21, 22, 41-48 stand rejected as being unpatentably obvious over Clokie US Patent No. 6,309,659 in combination with Zhang US 6,232,340. Claims 16-19, 22-24 stand rejected as being unpatentably obvious over Clokie, Zhang and Sierra US 5,290,552.

Applicants have amended claims 1 and 41 to clarify that Applicants' claimed carrier includes no hydroxyl groups and is derived from a dilithium salt. Support for the amendments can be found at Example 1 where Pluronic, a dihydroxy compound, is treated with either n-butyllithium or lithium aluminum hydride to produce the dilithium salt. Methyl iodide is then added to produce the dimethyl ether and complete a two-step reaction. Applicants describe in Example 1 that gasometric measurements can be used to confirm that no hydroxyl groups are present in the chemically modified sample. Applicants also teach in Example 1 the method of exposing purified product samples to lithium aluminum hydride solutions to confirm the complete absence of hydroxyl groups. Physical confirmation of the absence of hydroxyl groups can also be obtained by infrared and proton NMR spectroscopic analyses.

Applicants request entry and consideration of the foregoing amendments and reconsideration of the application in view of the following remarks, which are intended to place this case in condition for allowance.

## **II. The Double Patenting Rejection**

At page 4 of the instant Office Action, claims 1-3, 9,12, 13 and 21 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8-13 of copending application USSN 10/326,339. While Applicants traverse the double patenting rejection, Applicants are providing a terminal disclaimer to obviate the rejection.

## **III. The Claims Are Patentable over Clokie and Zhang**

At page 4, claims 1-15, 20, 21, 22, 41-48 stand rejected as being unpatentably obvious over Clokie US Patent No. 6,309,659 in combination with Zhang US 6,232,340. The Examiner states at page 5 that Clokie teaches the claimed copolymer being hydroxyl terminated. The Examiner has chosen to modify the hydroxyl terminated copolymer of Clokie by replacing the terminal hydroxyl groups with methyl groups. The Examiner states that Zhang teaches that PEG (polyethylene glycol) and MePEG (methoxypolyethylene glycol) are equivalent and so one would be motivated to use the claimed methyl end capped polymer.

Applicants respectfully traverse the Examiner's rejection based on the amended claims now presented. At the outset, applicants note that Zhang discloses PEG which is polyethylene glycol and not the claimed block copolymer which includes polypropylene units. Further Zhang teaches the use of the PEG or MePEG as a starting material to make other polymers and are not used as a carrier themselves. Since the compound of Zhang is different from that claimed, the conclusion as to equivalency reached by the Examiner is inappropriate. On that basis, the rejection should be withdrawn.

In addition, Applicants' claimed sample of copolymer has no hydroxyl groups. Applicants create the claimed sample by a two step reaction described in Example 1 where a

lithiating agent is combined with a dihydroxy compound to create a dilithium salt followed by ether creation using methyl iodide. As a result of this advantageous single step, all of the hydroxyl groups have been converted to lithium salts. Applicants' claimed method does not require a three step method where some hydroxyl groups are converted to salts, for example, by using sodium methoxide followed by a second step of hydroxyl conversion using sodium hydride with ether formation through the use of methyl chloride. Also, Applicants' method does not use a monomethyl copolymer as a starting material, such as that identified in the secondary Zhang reference, but instead uses the dihydroxy copolymer.

Clokie teaches the use of a carrier having reverse phase properties. As an example of such a carrier, Clokie teaches broadly the use of block copolymers, and oxyalkylene copolymers and poloxamers. See col. 1 lines 42-56. The formula at col. 1 illustrates a polyoxyalkylene copolymer having terminal hydroxyl groups. Clokie claims the use of a poloxamer. In US 6,623,748, a continuation of Clokie '659, Clokie claims the use of a poly(oxyalkylene) block copolymer. The Examiner modifies the hydroxyl terminated copolymers of Clokie '659 with the MePEG polymer of Zhang.. However, the Examiner's combination of Clokie with Zhang fails to teach the claimed subject matter as amended, namely the sample having no hydroxyl groups. The MePEG referenced by Zhang includes a terminal hydroxyl group, as evidenced by the web printout for Carbowax MPEGs attached at tab A. As the printout shows, compounds generally referred to as methoxypolyethylene glycols include a terminal hydroxyl group. As a result, Zhang cannot teach the use of a compound having no hydroxyl groups and terminal methyl groups.

As described above, the Examiner's combination of Clokie and Zhang fails to teach or suggest all of Applicants' claim limitations. Further, Zhang provides no motivation to modify

Clokie to arrive at the amended subject matter, because Zhang does not teach use of a polymer with no hydroxyl groups. Accordingly, the Examiner's rejection over the combination of Clokie and Pine should be withdrawn.

**IV. The Claims Are Patentable over Clokie, Zhang and Sierra**

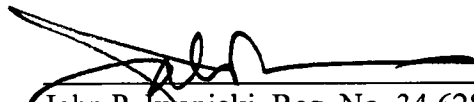
At page 6, claims 16-19, 22-24 stand rejected as being unpatentably obvious over Clokie US Patent No. 6,309,659 in combination with Zhang US 6,232,340 and further in view of Sierra US 5,290,552. Applicants respectfully traverses the Examiner's rejection.. The combination of Clokie and Zhang does not teach or suggest the claimed invention as discussed above. Sierra, relied on by the Examiner for the teaching of bone powder or bone chips, does not cure the deficiencies. Sierra teaches nothing of the claimed carrier having no hydroxyl groups. Accordingly, the rejection should be withdrawn.

**V. Conclusion**

Having addressed all outstanding issues, Applicants respectfully request entry and consideration of the foregoing amendments and reconsideration and allowance of the case. To the extent the Examiner believes that it would facilitate allowance of the case, the Examiner is requested to telephone the undersigned at the number below.

Respectfully submitted,

Dated: December 1, 2005

  
\_\_\_\_\_  
John P. Iwanicki, Reg. No. 34,628  
BANNER & WITCOFF, LTD.  
28 State Street, 28th Floor  
Boston, MA 02109  
(617) 720-9600

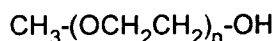
[Dow Home](#)[Products and Services](#)[Search](#)[Help](#)

## CARBOWAX Products

### Polyethylene Glycols and Methoxypolyethylene Glycols

## CARBOWAX MPEGs for Industrial Applications

CARBOWAX™ Methoxypolyethylene Glycols (MPEGs) are a family of water-soluble linear polymers formed by the addition reaction of ethylene oxide. The generalized formula for methoxypolyethylene glycol is:



where "n" is the average number of repeating oxyethylene groups.

MPEG is designated by a number that represents its average molecular weight. For example, CARBOWAX MPEG 550 consists of a distribution of polymers of varying molecular weights with an average of 550, which corresponds to an approximate average number of repeating oxyethylene groups ("n") of 13. The letter "E" indicates Europe grade.

CARBOWAX Methoxypolyethylene Glycols are available in average molecular weights ranging from 350 to 5000.

This wide range of products provides flexibility in choosing properties to meet the requirements of many different applications.

### Products

[CARBOWAX PEGs for Industrial Applications](#)[CARBOWAX MPEGs for Industrial Applications](#)[CARBOWAX SENTRY™ Products for USP/NF Applications](#)

### CARBOWAX Methoxypolyethylene Glycols†

CARBOWAX MPEG	CTFA <sup>(a)</sup> /INCI <sup>(b)</sup> Nomenclature	Range of Average Molecular Weight	Appearance at 27°C	Available Physical Form
350, 350E	PEG-6 Methyl Ether	335 to 365	Clear Viscous Liquid	Liquid
550, 550E	Methoxy PEG-10	525 to 575	Clear Viscous Liquid	Liquid
750, 750E	Methoxy PEG-16	715 to 785	Soft Opaque White Solid	Paste
2000	Methoxy PEG-40	1800 to 2200	Hard Opaque White Solid	Granular

†Typical properties, not to be construed as specifications.

<sup>(a)</sup>Cosmetics, Toiletries and Fragrances Association

<sup>(b)</sup>International Nomenclature Cosmetic Ingredient

Site Navigation:



[CARBOWAX Home: Products: CARBOWAX MPEGs for Industrial Applications](#)

Copyright © The Dow Chemical Company  
(1995-2005). All Rights Reserved.

[Privacy Statement](#) | [Internet Disclaimer](#) | [Accessibility Statement](#) | [Site Map](#)